

Private wells and PFAS

Harvard Board of Health
March 23, 2023



Program

- Mary Jude Pigsley, Andrea Briggs MA Dept of Environmental
- Jim Starbard, Madison Wellman, RCAP Solutions
- Dr Amie Shei , The Health Foundation of Central MA
- Senator Jamie Eldridge & Representative Dan Sena
- Laurie Nehring , People of Ayer Concerned about the Environment (PACE)
- Laurel Schaider , Silent Spring Institute
- Tim Kilhart/DPW
- Tim Bragan, Town Administrator
- Chris Mitchell, Sharon McCarthy, Libby Levison, Harvard Board of Health

Mary Jude Pigsley, Andrea Briggs

Massachusetts Department of Environmental
Protection (DEP)

Private Wells & PFAS Information Forum

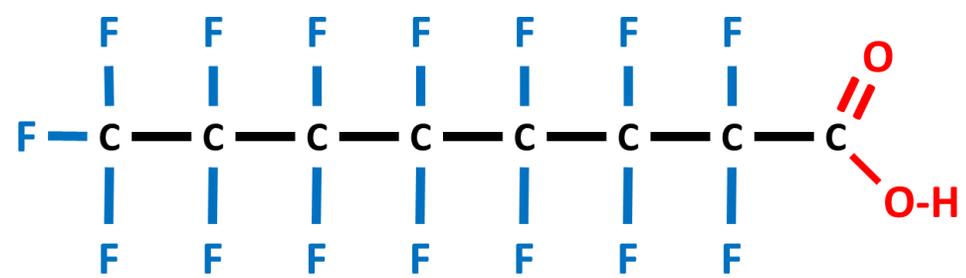
Town of Harvard
March 23, 2023

Mary Jude Pigsley, Regional Director, MassDEP Central Regional
Office

Andrea Briggs, Deputy Regional Director, Bureau of Administrative
Services



What Are PFAS?



Poly- and perfluoroalkyl Substances

A family of thousands of compounds with varying structure

(e.g, carbon chain length)

- **Extremely stable** – Heat & Stain Resistant, Water repellent
- **“Forever chemicals”** - Very persistent, do not biodegrade
- **Water Soluble**
- **Some are very toxic**
 - Slowly excreted from the body – half lives of years (1-8+ for longer-chain)
 - Developmental risks to fetus/infants
 - Endocrine disruption, effects on immune system
 - Possibly cancers (kidney, teste, pancreas, liver)

Common Uses of PFAS Since the 1950s

- Textile treatments: stain resistance/ water repellency
- Paper coatings: grease resistant
- Waxes: some floor, car, ski
- Hairsprays, mascara
- “Waterproof” down
- Manufacturing
- Aqueous Film-Forming Foam (AFFF)



Most Americans are exposed to some levels of PFAS through use of consumer products

What Are Exposures of Concern for PFAS?

Sensitive groups – *including pregnant women, nursing mothers and infants* – drinking (and cooking with) contaminated water in a residential setting

(sensitivity – concentration – frequency)

Water uses that pose (relatively) less concern include:

- Water use by someone not considered in “sensitive group”
- Non-residential water use – *restaurants, workplaces, schools*
- Water use for other purposes – *bathing, washing vegetables*

Ways people may reduce potential exposure:

- Drink and cook with bottled water
- Use a home water treatment system (but not reverse osmosis)



Where does your water come from?



Public water supply wells: serve 25 or more people each day, even if privately owned

Private wells: fewer than 25 people, even if publicly owned

Public Water Systems in Harvard

- Seven *Community* Systems serve about 2,200 people
- Five *Non-Transient* Systems
- 10 *Transient* Systems



Massachusetts Regulation of PFAS

U.S. EPA Unregulated Contaminant Monitoring Rule 4:
sampling by Public Water Systems with > 10,000 customers

2016: EPA lifetime Health Advisory for two most studied (PFOA and PFOS) 70 ppt combined

2018: MassDEP drinking water Guideline of 70 ppt for five compounds (PFOA, PFOS, PFNA, PFHxS, and PFHpA)

January 2020: MassDEP revised drinking water Guideline of 20 ppt for six compounds (five above plus PFDA)

October 2020: MassDEP final Massachusetts **Maximum Contaminant Level (MCL)** of 20 ppt **PFAS6**, includes consideration of short-term exposures



MassDEP addressing PFAS contamination

PFAS information

Projects by Public Water Systems PWS in Massachusetts to address PFAS contamination. This story map consists of clickable seven tabs that present interactive maps, dashboards and photographs that describe the efforts by MassDEP and the PWSS to address PFAS contamination.



1 Introduction

2 Testing

3 PFAS detections and responses by public water systems

MassDEP recently adopted a drinking water standard limiting the sum of six specific PFAS to no more than 20 parts per trillion. Together, these six PFAS are referred to as "PFAS6." The following interactive map displays locations where public water systems have detected the sum of these six state-regulated PFAS at levels over 20 parts per trillion in "finished" water, or in water that is made available for public use.

4 Removing PFAS from drinking water



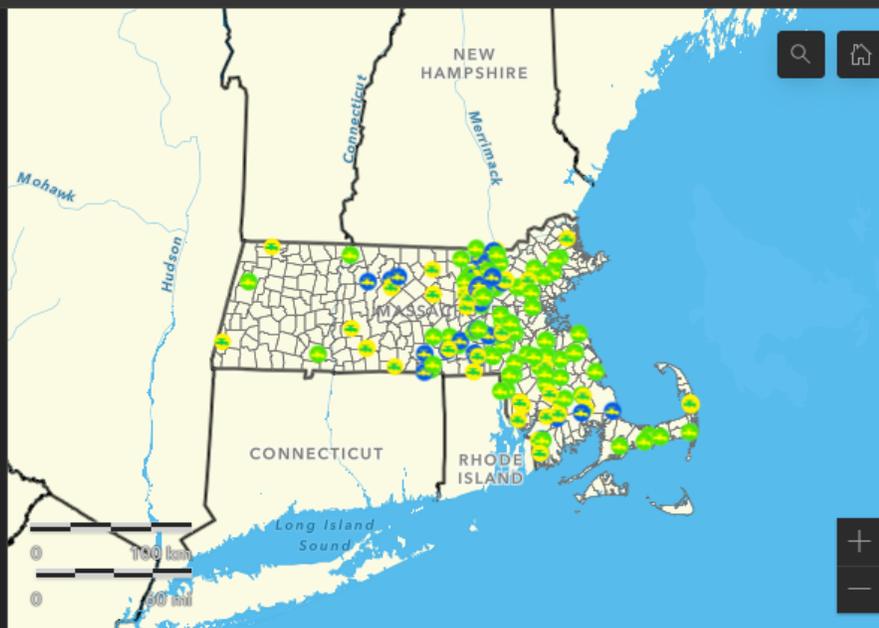
Public Water System PFAS Detection and Response Actions

Public Water Systems (PWS) who detected PFAS6 over the Maximum Contaminant Level (MCL) in their finished water and their res...

LEGEND

Public Water Systems type

- Community water system
- Non-transient Non-community Water System
- Transient Non-community Water System



PWS detected PFAS6 above 20 ppt

- 28 Hasting Street Corp
- 330 Codman Hill Road Boxborough
- 85 Swanson Rd LLC
- Abington/Rockland Joint Water Works
- Acton Water District
- American Aquafer
- Andrews Farm Water Co., Inc
- Applewood Community Corporation
- Aquarion Water Company, Millbury

Group PWS types More info

There are 1,417 active non-consecutive Public Water Suppliers that were required to test for PFAS.

PWS sampled PFAS6 Disclaimer on the map



Proposed National Primary Drinking Water Regulation

March 2023

- Would establish a national legally enforceable level (MCL) for six PFAS and require public water systems to monitor the water served to customers, notify customers of the levels, and reduce the levels of PFAS in drinking water where the levels are exceeded.
- The proposed compounds to be regulated nationwide are: PFOA, PFOS, PFNA, PFHxS, PFBS, and GenX Chemicals
- 60-day public comment period with a virtual public hearing on May 4th
www.epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas





EPA Proposed National Primary Drinking Water Regulation for PFAS vs. MassDEP

Chem	MA MCL	Proposed MCLG	Proposed MCL based on EPA quantification limit (approximate risk-based values)	Equivalent individual MCL
PFOA	Part of PFAS6 group – 20 ppt summed	0 ppt	4.0 ppt (0.01 - 0.1)	NA
PFOS		0 ppt	4.0 ppt (0.6 - 7)	NA
PFHpA		NA	NA	NA
PFDA		NA	NA	NA
PFNA		1.0 (unitless) on Hazard Index	1.0 (unitless) on Hazard Index	10 ppt
PFHxS				9 ppt
PFBS	N/A			2000 ppt
GenX	N/A			9 ppt



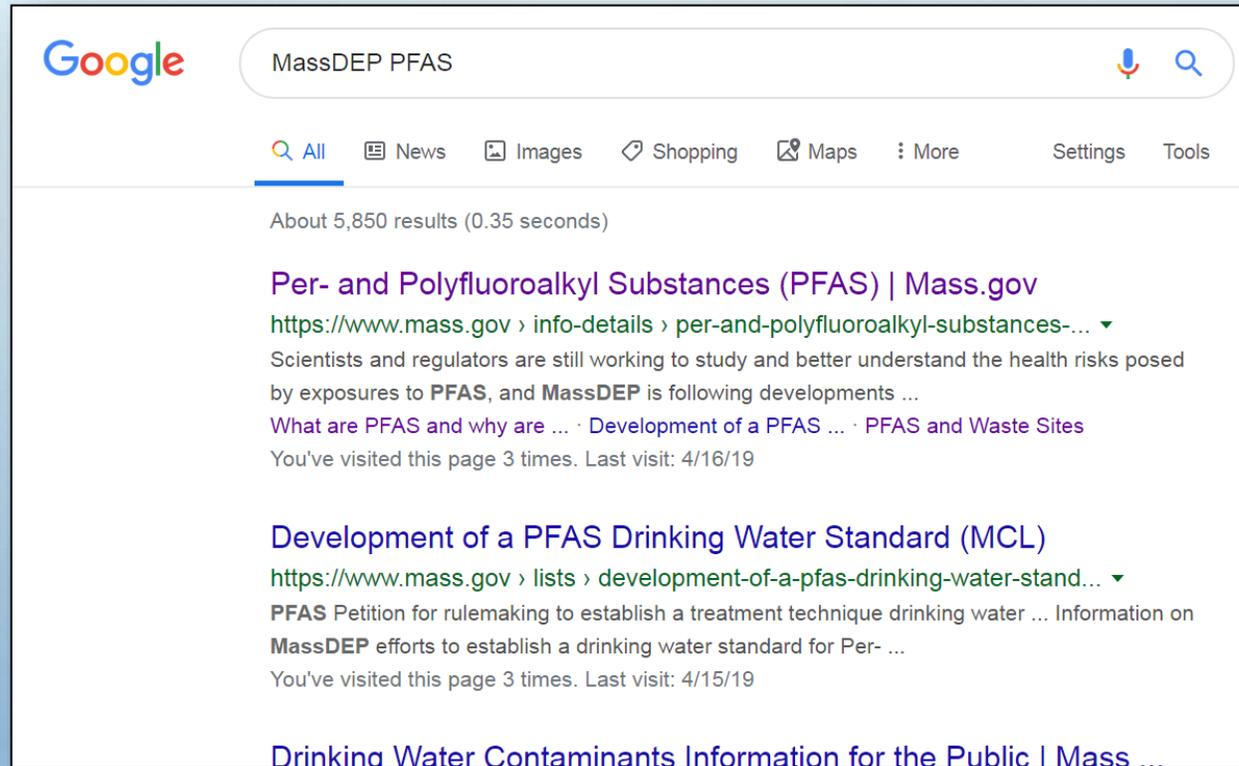
PFAS6 in Private Wells

- Approximately 200,000 private wells serving about 600,000 people in Massachusetts
- MassDEP received \$1 million in funding in FY21 (ended June 30, 2021) to sample private wells in the 85 towns in which more than 60% of the population is served by private wells
- Partnered with UMass to conduct the outreach and arrange for sampling materials to be sent to homeowners
- 1,668 private wells were sampled for PFAS6 with 95% below the drinking water standard



More Information...

Just Google... *MassDEP PFAS*



Google search results for "MassDEP PFAS". The search bar shows "MassDEP PFAS" and the Google logo. Below the search bar are navigation options: All, News, Images, Shopping, Maps, More, Settings, and Tools. The results show "About 5,850 results (0.35 seconds)".

Per- and Polyfluoroalkyl Substances (PFAS) | Mass.gov
<https://www.mass.gov/info-details/per-and-polyfluoroalkyl-substances-...>
Scientists and regulators are still working to study and better understand the health risks posed by exposures to PFAS, and MassDEP is following developments ...
What are PFAS and why are ... · Development of a PFAS ... · PFAS and Waste Sites
You've visited this page 3 times. Last visit: 4/16/19

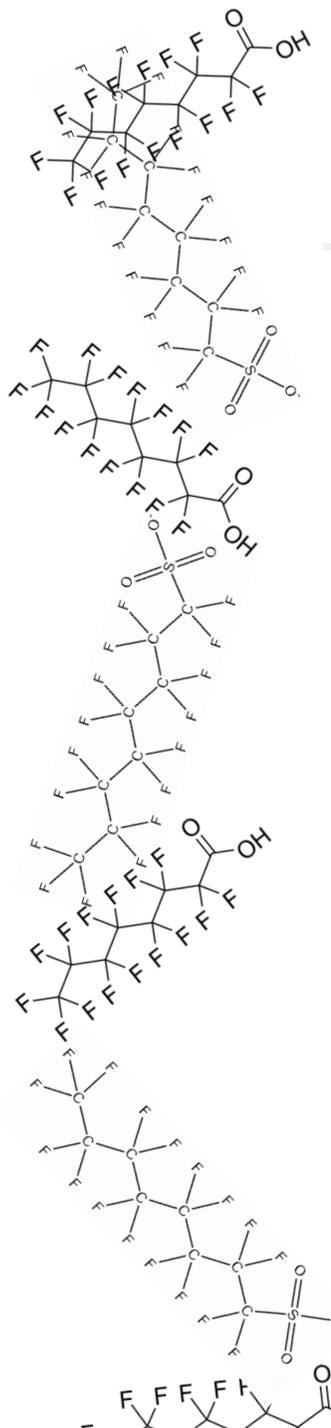
Development of a PFAS Drinking Water Standard (MCL)
<https://www.mass.gov/lists/development-of-a-pfas-drinking-water-stand...>
PFAS Petition for rulemaking to establish a treatment technique drinking water ... Information on MassDEP efforts to establish a drinking water standard for Per- ...
You've visited this page 3 times. Last visit: 4/15/19

Drinking Water Contaminants Information for the Public | Mass...



youtube.com/MassDEP
flickr.com/MassDEP
Mass.Gov/DEP
@MassDEP





Mass Dept of Public Health

[Home](#) > [Environment](#) > [...](#) > [Environmental Exposure Topics](#) > [Drinking Water](#)

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Per- and Polyfluoroalkyl Substances (PFAS) in drinking water

See frequently asked questions and answers.

This fact sheet answers frequently asked questions about the detection of Per- and Polyfluoroalkyl Substances (PFAS) in drinking water. It includes information about a drinking water standard (referred to as a Maximum Contaminant Level, or MCL) for PFAS, finalized by the Massachusetts Department of Environmental Protection (MassDEP) in October 2020.

FAQ

What are PFAS?

Per- and polyfluoroalkyl substances (PFAS) are a group of man-made chemicals manufactured and used in a variety of consumer products and industries throughout the world. Two of these PFAS chemicals, perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS), have been

CONTACT

Environmental Toxicology Program

Address

250 Washington St., 7th Floor, Boston, MA 02108

[Directions](#) →

Phone

(617) 624-5757

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[more contact info](#) ↘

Feedback



Jim Starbard, Madison Wellman

RCAP Solutions



Private Well Program to Protect Public Health: Water Testing Results (2020–2022)

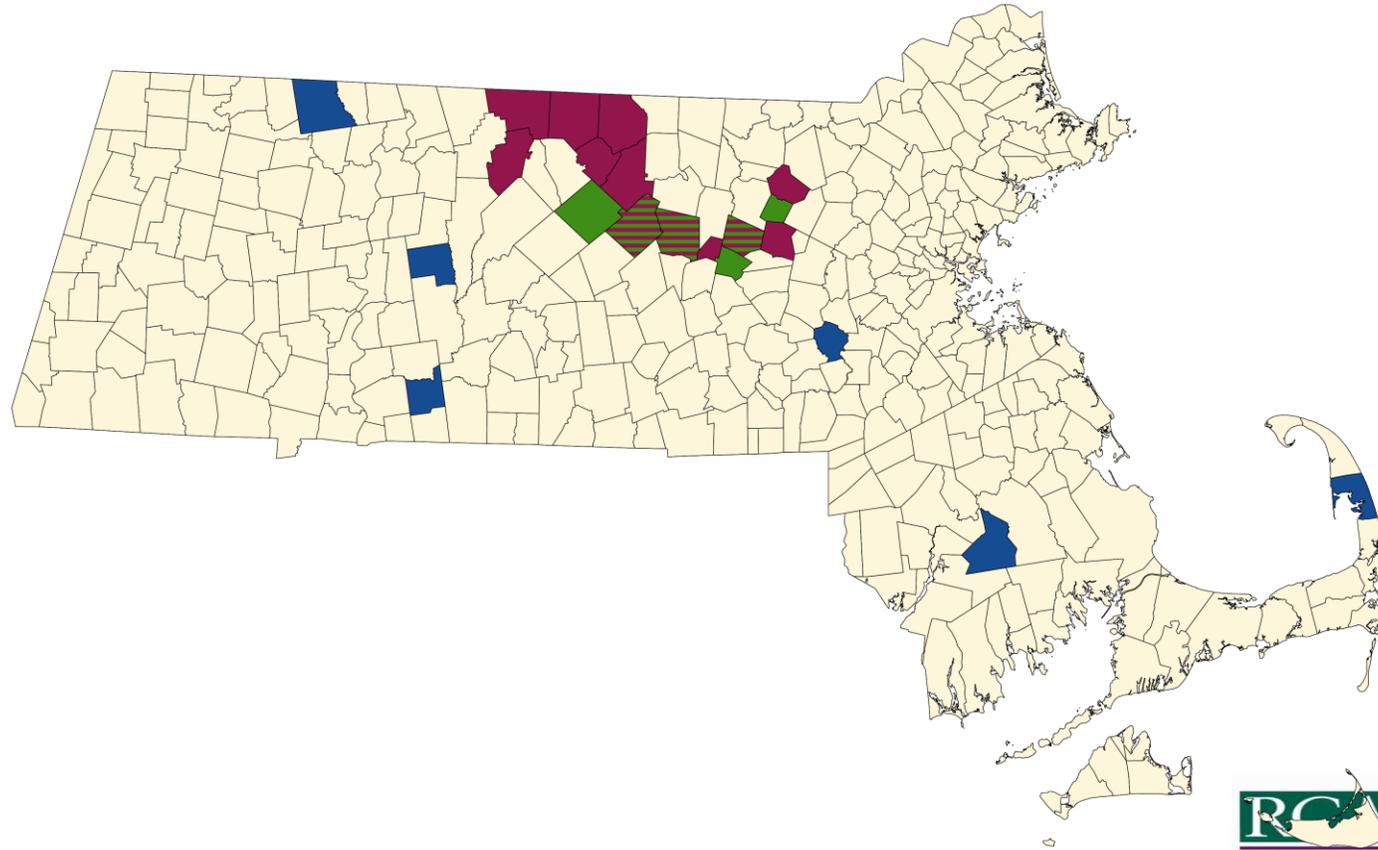
Jim Starbard

Regional Director (CT, MA & RI)

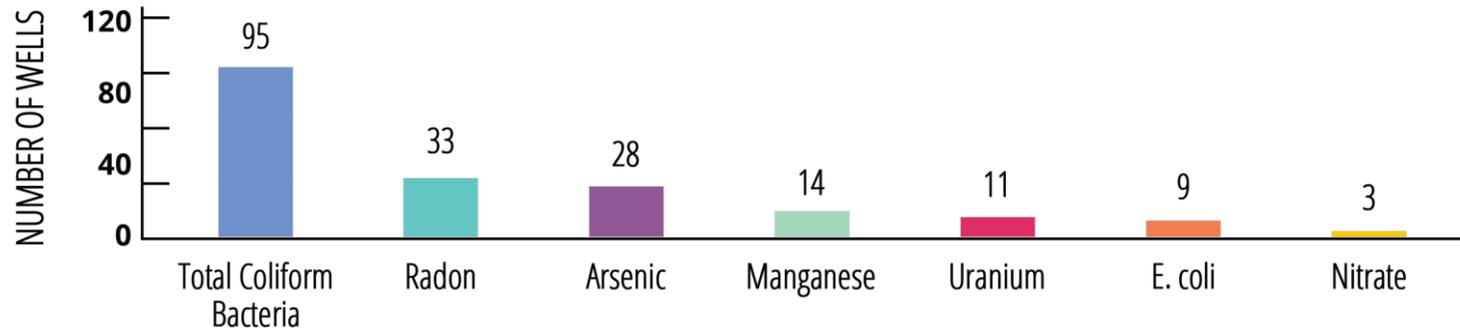
Health Based Contaminants

Contaminant	MMCL	Examples of Potential Health Risks
Arsenic	.010 mg/L	Cancer, skin damage, circulatory system problems
E. coli	Present/absent	Gastrointestinal illness
Nitrate	10 mg/L	Can cause death in babies younger than 6 months
Radon	10,000 pCi/L	Cancer
Total Coliform Bacteria	Present/absent	Gastrointestinal illness
Uranium	.030 mg/L	Cancer, kidney toxicity
Manganese	.3 mg/L	Neurological effects

Towns Tested



Results

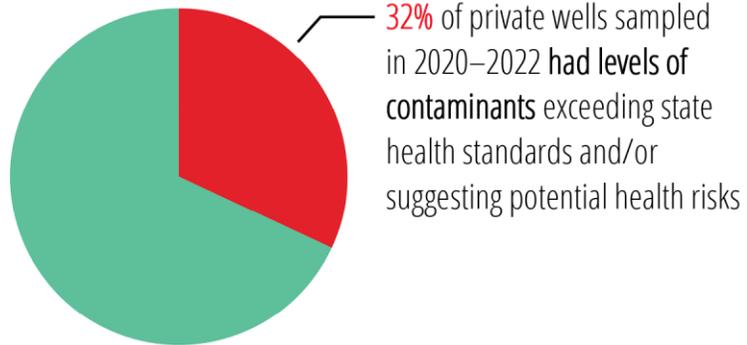


Comparison

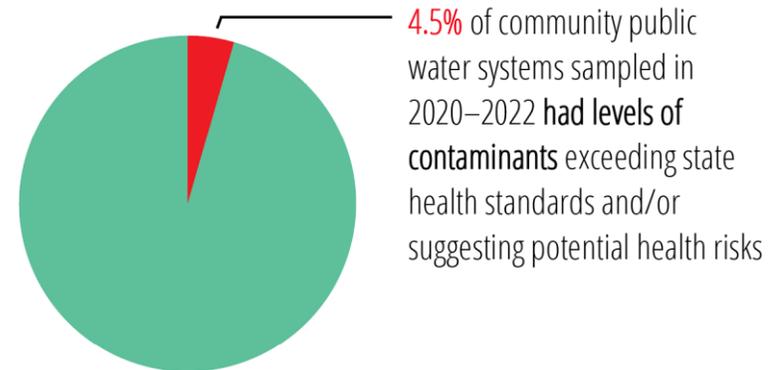
Private Wells

Community Public Water Systems

Private Wells Sampled by RCAP Solutions (2020–2022)



MassDEP Data for Community Public Water Systems in Massachusetts (2020–2022)



Assistance Available



Southeast Rural Community Assistance Project, Inc. and RCAP Solutions

SERCAP is Now Accepting Applications for Individual Household Well and Septic Loans

In partnership with RCAP Solutions, SERCAP is now providing Well & Septic Loans in: ME, NH, VT, MA, CT, PA, RI, NY, NJ, Puerto Rico, and the USVI.



For more information, visit SERCAP online at www.sercap.org

347 Campbell Ave., SW
Roanoke, VA 24016
Email: loanfund@sercap.org
Phone: 540-345-1184
TTY: Dial 711



The Individual Household Well & Septic Loan products, which are underwritten by USDA Rural Development, provide low-interest (1%) loans to eligible Low-to-Moderate Income (LMI) homeowners for the repair or replacement of an individual household well or septic system.

SERCAP's loan eligibility criteria, includes:

- Loans of up to \$15,000.00 for installation of a new Well or Septic System (standard or alternative) or repair of an existing Well or Septic System
- Interest rate of only 1%
- Loan terms up to 10 Years
- Credit Report Fee of \$30.00 per applicant
- 3% Loan Application Fee*
- 5% Loan Origination Fee*
- \$350 Loan Closing Fees*
- Loan recipient must own and occupy the property
- Property must be located in a rural area with population of 50,000 residents or less
- Individual Household Well or Septic System may not be used to substitute water/wastewater service available from a public system
- Individual Household Well or Septic System may not be associated with the construction of a new dwelling
- Applications can be submitted via SERCAP's Secure Website

Maximum Income Eligibility by State

- Maine - \$84,800.00
- New Hampshire - \$108,000.00
- Vermont - \$92,800.00
- Massachusetts - \$120,400.00
- Connecticut - \$112,600.00
- Pennsylvania - \$90,100.00
- Rhode Island - \$99,300.00
- New York - \$99,500.00
- New Jersey - \$117,500.00
- Puerto Rico - Call for Eligibility
- US Virgin Islands - \$61,800.00 for St. Croix, \$74,500.00 for St. John, and \$69,400.00 for St. Thomas

*Please note that a Deed of Trust (aka a lien) will be placed on the property, in order to secure the loan. Additionally, the Application, Origination, and Closing Fees (\$350) may be rolled into the total loan amount, if sufficient funds are available.

SERCAP is an Equal Opportunity Service Provider and Lender. If you need assistance to access SERCAP's services due to Limited English Proficiency (language barriers), mobility impairments, or other disabilities, please let SERCAP know so that we can provide the necessary accommodations.

www.sercap.org



Dr Amie Shei

The Health Foundation of Central
Massachusetts

Senator Jamie Eldridge

“An Act Promoting Drinking Water Quality for All”

S.482 / H.902

Senate Bill Sponsored By Senator Eldridge
House Bill Sponsored By Rep. Sena & Rep. Pignatelli

The Health Risks of Untested Wells

- **PFAS** - Developmental effects in fetuses & infants. Effects on the thyroid, liver, kidneys, certain hormones, & the immune system.
- **E. coli** - Gastrointestinal illness
- **Nitrate** - Can cause death in babies younger than 6 months
- **Radon** - Cancer
- **Total Coliform Bacteria** - Gastrointestinal illness
- **Uranium** - Cancer, kidney toxicity
- **Manganese** - Neurological effects
- **Arsenic** - Cancer, skin damage, circulatory system problems

This Act Will

- Authorize MassDEP to develop health based regulations to ensure private well water is safe to drink.
- Be the first step in achieving uniform statewide private well regulations to protect health.
 - Such regulations already exist in Oregon, Rhode Island, and New Jersey
- Likely be modeled after Title 5 legislation (regulations for septic systems)
- Expand the existing MassHousing Septic Repair Loan Program (SRLP) to provide low-income homeowners with access to financial assistance to remediate contaminated private wells.

This Act Will NOT

- Impose an undue burden on homeowners.
 - There will be efforts to educate homeowners, address lab testing capacity, and develop strategies to mitigate paperwork for homeowners and health agents.
- Specify what the exact regulations will be.
- Contain details about contaminants, testing requirements, and reporting. These details would be developed by MassDEP, likely with input from water experts, stakeholders, and the public.

An Equity Issue

- Residents who live in municipalities with public water systems or with local private well regulations are more likely to have access to safe drinking water than residents who don't.
- This prioritizes the health and wellbeing of some communities over others, which is unacceptable.

Bottled is Not the Answer

- Many people who discover contaminants in their wells resort to drinking bottled water.
- This is a more expensive means of obtaining drinking water.
- Plastic harms the environment
 - 80% of plastic water bottles used in the United States end up in landfills.

Thank You

Representative Danillo Sena

No Private Well standards for

- Arsenic
- Chloride
- Copper
- Fluoride
- Hardness
- Iron
- Lead
- Manganese
- pH
- Sodium
- Coliform Bacteria
- Nitrate/Nitrite
- Uranium
- Radon
- **PFAS**

PFAS were detected above EPA standards in about 1/5 of sampled private wells in Harvard.

H.902

AN ACT PROMOTING DRINKING WATER QUALITY FOR ALL

House Sponsor: Rep. Danillo A. Sena & Rep. Smitty Pignatelli
Senate Sponsor: Sen. Jamie B. Eldridge

WHY THIS MATTERS

Our State Constitution ensures the right to clean air and water. However, there are no statewide protections to ensure that the 500,000 Massachusetts residents who rely on private wells for drinking water have water that is safe from contaminants like arsenic, E. coli, PFAS, and uranium. Testing programs have recently found that 32% of private wells in participating households have contaminants in drinking water that exceed state health standards and that 5% of private wells participating in a Department of Environmental Protection (DEP) PFAS testing program had PFAS₆ exceeding the state standards

BILL HIGHLIGHTS

- Authorizes the DEP to develop health-based regulations to ensure private well water is safe to drink (just as public water systems are subject to DEP statewide regulations)
- Helps to achieve uniform statewide private well regulations to protect health.
- Expands the existing MassHousing Septic Repair Loan Program to provide low-income homeowners with access to financial assistance to remediate contaminated wells

PASSING THIS BILL MEANS

- ① We address a major gap in drinking water safety and public health in the Commonwealth: private wells.
- ② **Half a million residents with private wells have more protections to ensure that their drinking water is safe**
- ③ There will be less variation across the state in accessing safe drinking water



Please email Danillo.Sena@mahouse.gov if you have any questions.

H.902 / S.482

An Act Promoting
Drinking Water
Quality for All

1. Testing

Authorizes the DEP
to create testing
standards for
private wells

2. Funding

Opens funding
from existing
septic repair
program
for repair or
replacement of
non-compliant
wells

Reach Out!



Representative Danilo Sena

Danillo.Sena@mahouse.gov

(617) 722-2014

State House, Room 39

Boston, MA 02133



Legislative Aide Ian Flood

Ian.Flood@mahouse.gov

Madison Wellman

RCAP Solutions /

The Coalition for Safe Drinking Water

Laurie Nehring

The People of Ayer Concerned about the
Environment



Massachusetts PFAS & Your Health Study

Massachusetts PFAS & Your Health Study in Ayer

Dr. Laurel Schaidler, Senior Scientist
Silent Spring Institute, Newton, MA



SILENT SPRING INSTITUTE
Researching the Environment and Women's Health

Laurie Nehring, President
People of Ayer Concerned About the Environment





Everyone needs clean
drinking water



Massachusetts PFAS & Your Health Study

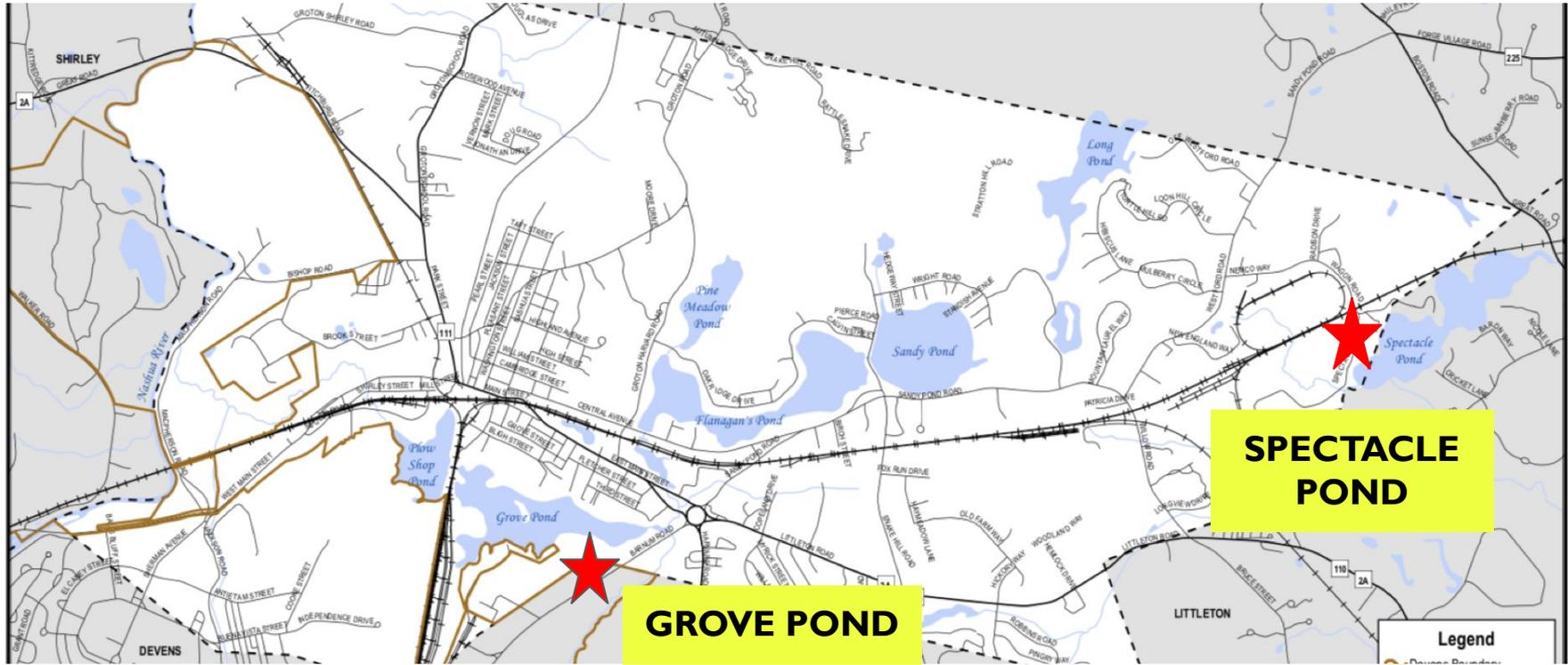


PFAS chemicals *were* found in Ayer drinking water in 2016.

Fortunately, Ayer was one of the first communities in MA to install treatment to remove PFAS.



Ayer, MA



One known source of PFAS in Ayer: Military use of AFFF Fire Fighting Foam for Class B fires.

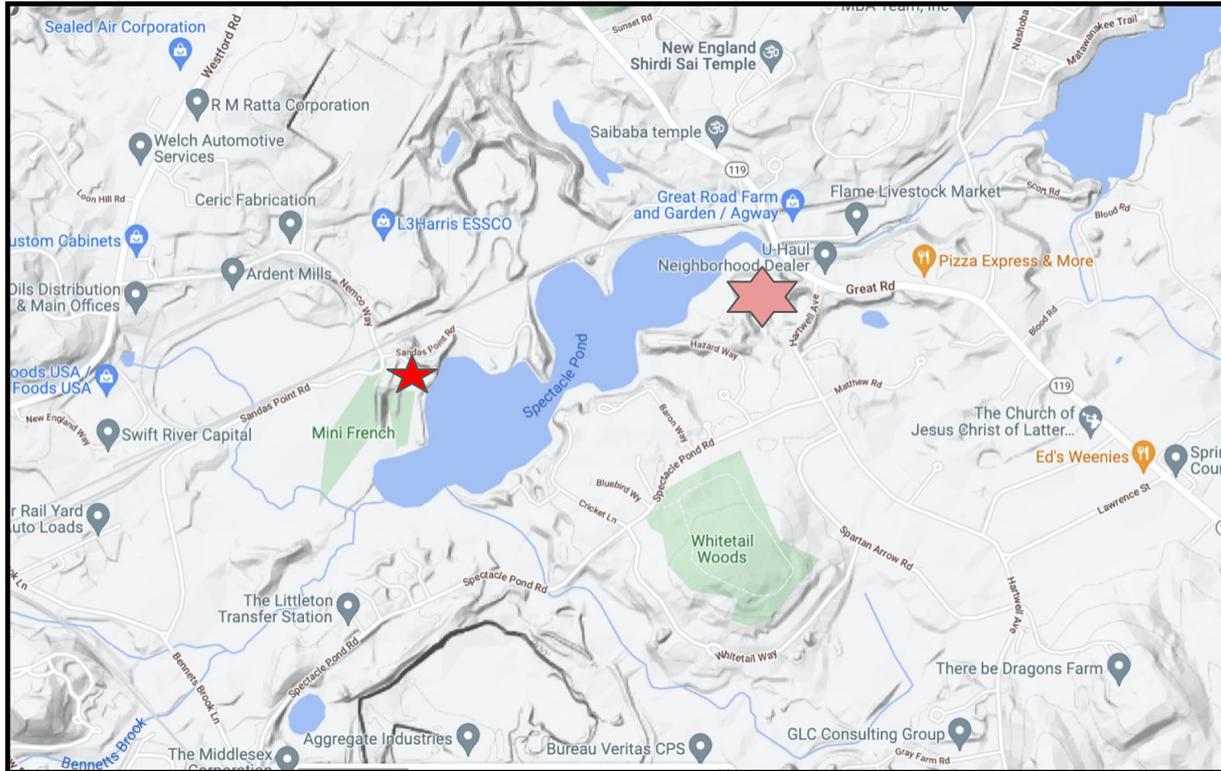


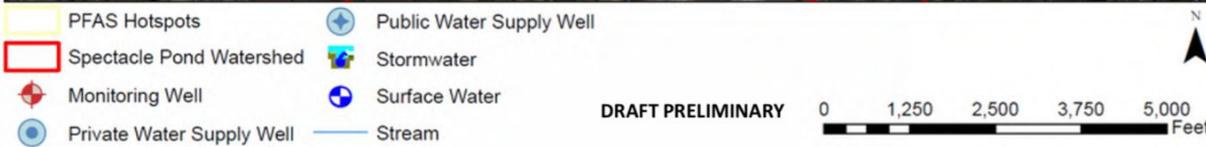
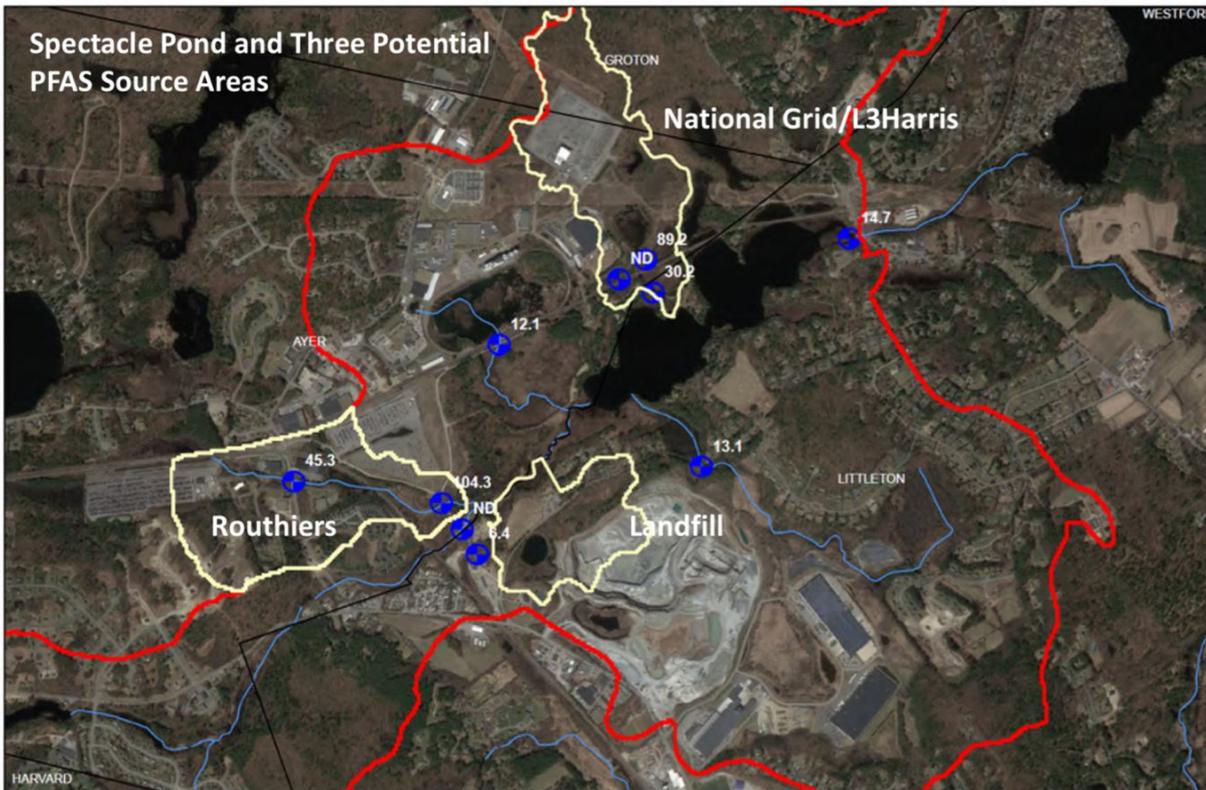
May 18, 2015:

Devens C&D Recycling Fire



Spectacle Pond wellfield







Grove Pond Treatment Facility and Wellfield

- Treats an average of 800,000 gallons a day
- 3 Wells
- PFAS Treatment with Anion Exchange (AIX)
- In Full Operation since November 2020



Spectacle Pond Treatment Facility and Wellfield

- Treats an average of 1,200,000 gallons a day
- 2 Wells
- PFAS Treatment with Granulated Activated Carbon (GAC)
- In Full Operation since July 2022

www.ayer.ma.us/water-department/pages/pfas-drinking-water



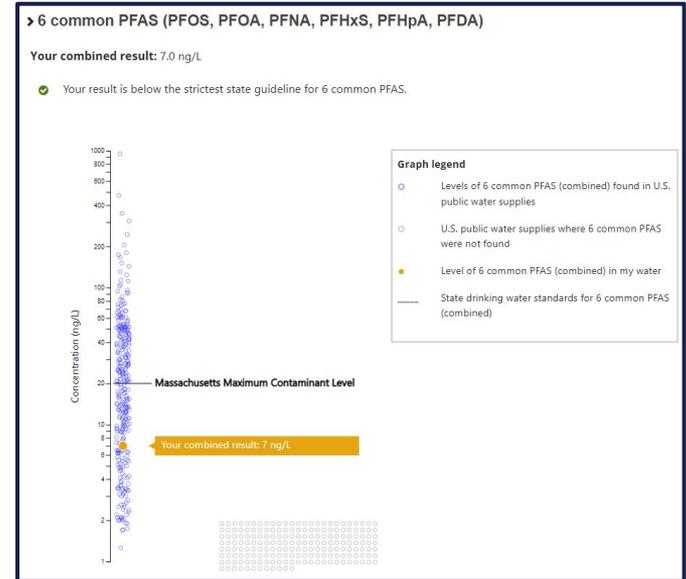
Dr Laurel Schaidler

Silent Spring Institute

Silent Spring Institute PFAS & Private wells

- PFAS Exchange

www.pfas-exchange.org

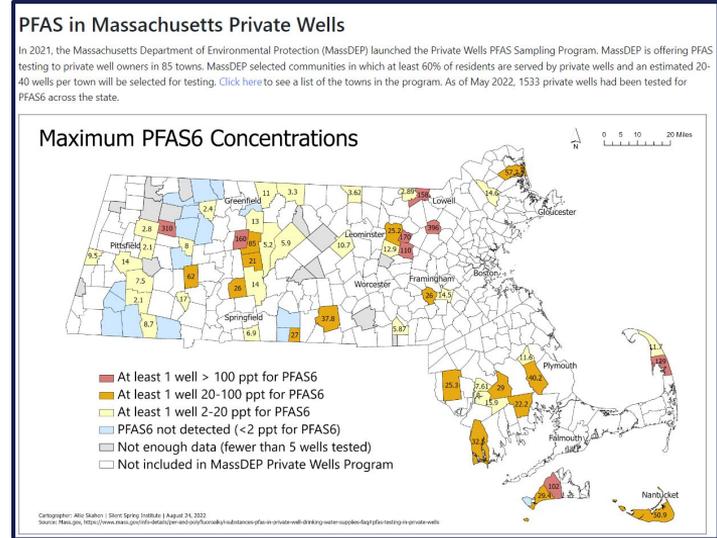


What's my Exposure tool to interpret drinking water and blood testing results



Silent Spring Institute PFAS & Private wells

- PFAS Exchange
www.pfas-exchange.org
- Tool for private well owners
privatewells.silentspring.org



Map with MassDEP results



Silent Spring Institute PFAS & Private wells

- PFAS Exchange
www.pfas-exchange.org
- Tool for private well owners
privatewells.silentspring.org
- URI STEEP Superfund Program
web.uri.edu/stEEP/wellwater

What's the quality of Cape Cod drinking water?

STEEP
Sources, Transport, Exposure & Effects of PFAS
Health & Environmental Science Center
Updated March 2021

PRELIMINARY FINDINGS FROM STEEP'S PRIVATE WELL STUDY ON CAPE COD

Key Findings

- STEEP tested water samples from 101 private wells in 12 towns across Cape Cod. About 46% of wells had detectable levels of at least 1 PFAS chemical, and 28% had 2 or more PFAS chemicals detected.
- The percentage of wells with detectable levels of 1 or more PFAS chemicals varied somewhat across different parts of the Cape, with the highest percentage in the Mid Cape and the lowest percentage in the Lower Cape.
- Wells with higher levels of nitrate had higher PFAS concentrations. Since nitrate is an indicator of septic system impact, this suggests that septic systems could be a source of PFAS in private wells.
- None of the wells exceeded the federal health guideline for PFAS. Three percent of wells exceeded a drinking water standard adopted by Massachusetts in October 2020.

What are PFAS?

PFAS (per- and polyfluoroalkyl substances) are a large family of chemicals commonly added to nonstick, stain-resistant, and waterproof consumer products such as carpets and upholstery, waterproof clothing, cookware, food packaging, and even some dental floss. They are also added to some firefighting foams used at military bases, airports, and fire training areas. Due to their extreme persistence in the environment, PFAS are often referred to as "forever chemicals."

PFAS chemicals have been found in public water supplies across the U.S., including in Hyannis and Mattapee. A prior study by Silent Spring Institute in 2011 found PFAS in a majority of private wells tested on Cape Cod. Potential sources of PFAS contamination to Cape groundwater include septic systems, firefighting foams, and discharges from sewage treatment plants and landfills.

The U.S. Environmental Protection Agency (EPA) issued a health guideline of 70 parts per trillion (ppt) for PFOA and PFOS (combined), two PFAS chemicals frequently found in the environment and in people. In 2018, the Massachusetts Department of Environmental Protection (MassDEP) issued a health guideline of 70 ppt for the total amount of 6 PFAS chemicals (PFOA, PFOS, PFNA, PFHxA, and PFHxS) in public water supplies. In October 2020, the Massachusetts Department of Environmental Protection (MassDEP) adopted an enforceable drinking water standard of 20 ppt for the total amount of six PFAS chemicals (PFOA, PFOS, PFNA, PFHxA, PFHxS, and PFSA) in public water supplies. Exposures to PFAS have been associated with higher cholesterol, effects on the liver and thyroid, decreased vaccine response in children, testicular and kidney cancer, changes in breast development, and other effects on growth and development.

What did STEEP do?

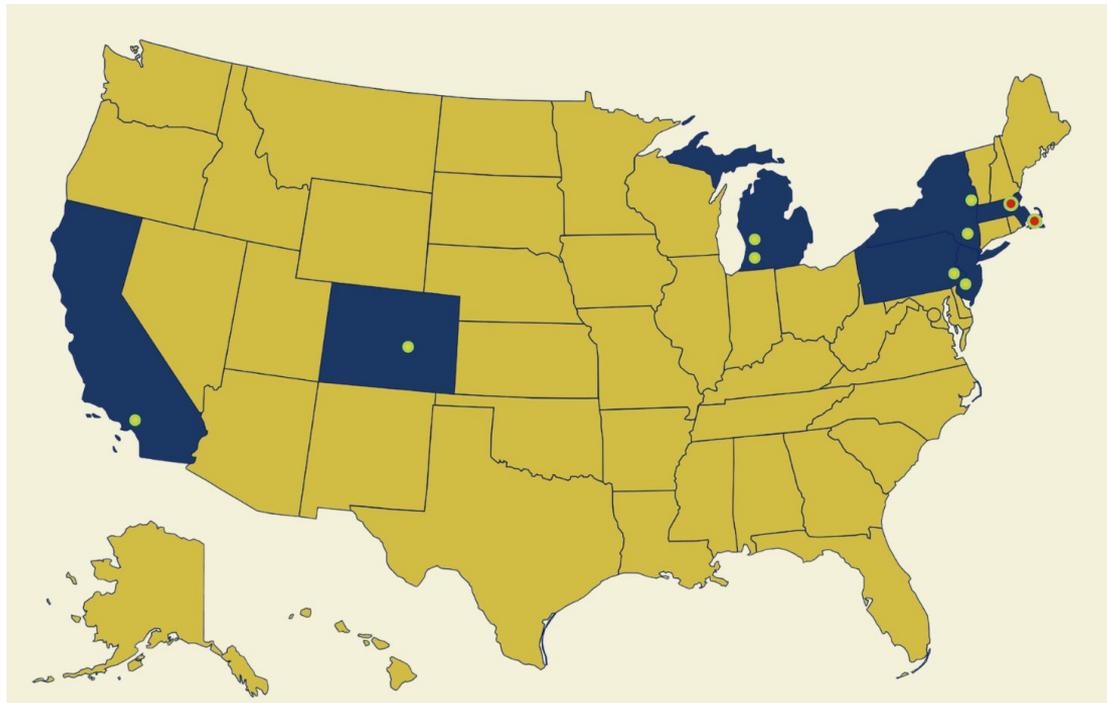
STEEP tested untreated water samples from 101 private wells in 12 towns across Cape Cod. Water samples were analyzed for 25 PFAS chemicals, including the 6 PFAS chemicals in the Massachusetts drinking water standard. Also measured were nitrate and boron, which indicate potential septic system influence, and some metals, such as lead and iron.

Percent of wells with detectable PFAS

Region	Percent of wells with detectable PFAS
Upper	55%
Mid	60%
Lower	35%
Outer	40%



CDC's Multi-Site PFAS Health Study

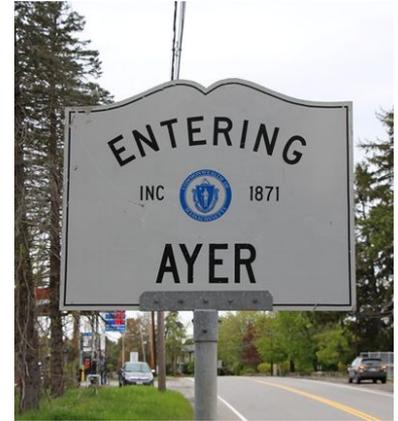


**Includes
communities in 7
states that have
had PFAS
contamination of
drinking water**



MA PFAS & Your Health Study in Ayer

- **Funded by the CDC**
- **MA is 1 of 7 sites across the U.S.**
- **Aim to recruit 300 adults and 100 children in Ayer**
- **Also recruiting in Hyannis**



Who is eligible?

- ✓ **Adults and children (4-17)**
- ✓ **Lived in Ayer anytime between May 2006 and February 2018**
- ✓ **Multiple members of same household can sign up**



What's involved?

- ✓ **Visit to our study office**
 - Informed consent
 - Body measurements
 - Blood and urine sample
- ✓ **Questionnaire (by phone)**
- ✓ **Neurobehavioral tests**
(children ages 5-17)



**Our study office is located
in the Nashoba Valley
Medical Office Building
190 Groton Road, Suite 200**



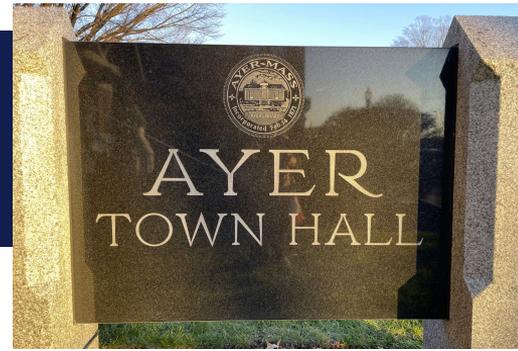
What will you receive?

- Results of YOUR blood PFAS levels and results of lab health tests.
- Satisfaction of being a part of a major study on chemicals of widespread concern.
- \$Gift Cards: For completing all parts of study, adults get \$50 and children get \$75.



Why is this study important?

- Ayer was selected to be part of this important national research project.
- Will answer important questions about how PFAS chemicals can harm our health.
- Findings will inform future regulations.



Learn more & sign up!

Email: ayer-pfas-study@silentspring.org

Call or text: (978) 212-9733

Website: bit.ly/ma-pfas

FIND US
ON SOCIAL
MEDIA



MA_PFAS_study



MAPFASHealthStudy



MAPFAS



SCAN this code
on your phone



Massachusetts PFAS & Your Health Study



By —
Bella Isaacs-Thomas

Leave your feedback

4 questions about the EPA's proposed PFAS drinking water standard, answered

AMANDA HODYER SCIENCE MAR 17, 2023 7:00 AM

The Filthy Truth About Your Tap Water

The US is proposing bold action to clean thousands of "forever chemicals" out of drinking water. It's long overdue.



Regulators should also "think upstream," when it comes to protecting people against forever chemicals, says Schaidler. That means stopping their production and reducing their presence in the water system—not just filtering them out. The European Union is evaluating a proposal to ban the production and use of 10,000 PFAS chemicals. That's the kind of action the US needs to take next, experts say. "Setting a drinking water standard is at the last step," says Schaidler, "after the contamination has happened."

Drinking water standards aren't based solely on health data but a combination of information, including cost-benefit analysis and the facts of what's technologically feasible, said Laurel Schaidler, a senior scientist at Silent Spring Institute, a research organization that studies breast cancer prevention and other health issues.

Regulators "have to think about the costs for all the treatment and testing for water supplies across the country and weigh that against the health benefits," Schaidler said, adding that the standards are often inevitably less stringent than "what the health information alone might say."



PACE's Water Chestnut PULL Campaign!





Massachusetts PFAS & Your Health Study

THANK YOU!

Dr. Laurel Schaider

schaider@silentspring.org

www.silentspring.org

Laurie Nehring

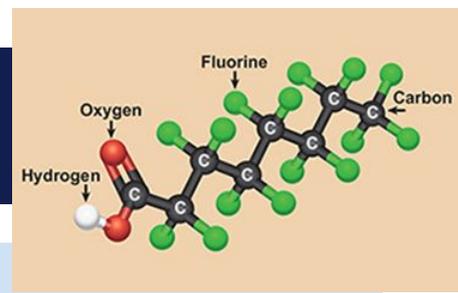
paceayer@gmail.com

Facebook: PACeayer



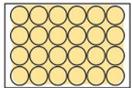
Massachusetts PFAS & Your Health Study

PFAS exposure and health concerns



PFAS exposures are common

- PFAS have been detected in over 99% of Americans



Harmful health effects linked to PFAS exposures

- Elevated cholesterol
- Cancer (kidney, testicular)
- Developmental effects
- Ulcerative colitis
- Immune system toxicity, including decreased vaccine response
- Thyroid disruption
- Decreased birth weight
- Changes in liver enzymes
- Preeclampsia



Tim Kilhart

Harvard DPW

Tim Bragan

Harvard Town Administrator

Chris Mitchell, Sharon McCarthy, Libby Levison

Harvard Board of Health

Questions and Answers

Thank you!

- Contact for the Board of Health:
 - BOH@HARVARD-MA.GOV (Alison Flynn)
 - Board of Health members' email addresses are on our home page
- Board of Health webpage: WWW.HARVARD-MA.GOV/BOARD-HEALTH
 - PFAS resources: Select “Water Quality”, then “PFAS”